Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Rural Health Care	)	**WC Docket No. 02-60**
Support Mechanism	)	
	)	

COMMENTS OF

Healthcare Anywhere, Inc.

Respectfully submitted by,

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SUMMARY

Healthcare Anywhere is a non-profit that was formed to develop mobile telemedicine projects. In the Comments that follow, Healthcare Anywhere sets out some of the background on how healthcare providers make decisions about the selection of telecommunications services to support telemedicine applications, especially mobile telemedicine applications. Further, Healthcare Anywhere points out the innovations that are possible because of the convergence of broadband telecommunications services, satellite included, and digital medical imaging, and high performance computing. Convergence offers the opportunity to address the health needs of rural America in new ways. With these new technologies, the previous lack of access to high quality care, lack of access to medical experts and other health disparities faced by rural America may finally be resolved cost effectively. There will be a transition period, as innovation can be expensive at the start. Over time, the adoption of new mobile telemedicine applications will contribute to greater care at lower cost with more efficient sharing of medical equipment.

To ensure that the benefits of quality healthcare reach rural America, Healthcare Anywhere urges the Commission to adopt rules that harmonize with the project planning undertaken by healthcare providers. Thus, Healthcare Anywhere suggests that applications for support include maps of areas to be served by mobile telemedicine providers. The applications might also include showings of the volume of data to be transmitted from the mobile clinic and the volume of data coming back. These showings will allow telecom service providers to bid more effectively to provide the relevant services, ensuring price competition and minimizing the transaction costs to the mobile healthcare provider.

Healthcare Anywhere is wary of any regulatory approach that caps the amount of support available to be used for satellite services. These services are not so easy to use for some telemedicine applications, and the engineering obstacles and costs currently provide sufficient barrier to the use of these services that a cost cap is unnecessary. Further, Healthcare Anywhere suggests that the Commission's regulatory approach maintain flexibility in any comparisons

made between fixed or terrestrial services. To best address health disparities and urge the development of infrastructure in rural areas, the Commission should ensure that the healthcare delivery projects are rural and otherwise qualify. Any use of a functional equivalence test should consider the widest range of options that might be available for a mobile telemedicine project in a city, or it might even just evaluate the telemedicine choices made in cities where mobility may not be part of formulation of projects because improving access to care does not require mobile health clinics.

Finally, it is important to realize that by developing mobile health clinics and reaching out to rural America, the nation as a whole will benefit from the technological advances, the improved health of underserved Americans, and a stronger health infrastructure supported by more comprehensive telecommunications infrastructure.

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Washington Federal Strategies on behalf of Healthcare Anywhere, Inc., a non-profit entity formed to deliver innovative telemedicine services anywhere they are needed, respectfully submits these Comments in response to the *Further Notice of Proposed Rule Making ("FNPRM")*, released by the Federal Communications Commission ("FCC" or "Commission") on November 17, 2003, in WC Docket No. 02-60. These Comments address some of the FCC's questions regarding the best means of extending universal service support for mobile rural telemedicine applications, particularly those that require satellite telecommunications to deliver real-time health services.

I. STATEMENT OF INTEREST

Healthcare Anywhere, Inc. is a non-profit entity formed in January 2002. Its mission is to promote telemedicine, including mobile telemedicine, by developing and managing projects that deliver healthcare services to underserved populations. The healthcare projects primarily focus on health examinations that are made more effective by real-time reporting of results to patients who otherwise might not get appropriate follow up care. As Healthcare Anywhere expands its reach, it also expects to work with rural health clinics that need new ways to reach out to their communities, to improve post-surgical follow up, to reduce the costs of care, and to facilitate patient care at home, as appropriate. The founders of Healthcare Anywhere created this entity to continue work that they undertook in 2001 to test the use of satellite transmission of mammographic images for real-time reporting.[1] Healthcare Anywhere has designed a program for the operational phases of a mobile digital mammography project that provides breast cancer examinations, with real-time reports, to underserved women in rural settings using telemedicine. The application may be more demanding than many existing telemedicine programs, but represents the growing list of high quality healthcare activities that can be provided in a mobile setting. Subsequent projects will reach out to diabetes patients, to screen immigrant

[1] *See* Gitlin, J., White, D., Fetter, J., Cook, L., and Linton, A., *Mobile Digital Telemammography, Phase I Report, Installation and Testing*, a report submitted to the Susan G. Komen Breast Cancer Foundation, November 2002.

communities for tuberculosis, and to collaborate with experts in screening examinations for cervical cancer. Healthcare Anywhere focuses on public health programs providing high quality radiological and diagnostic services in rural areas.

The Comments below address some of the specific questions that the Commission raised in the *FNPRM* regarding the use of satellite and other telecommunications services to deliver telemedicine to underserved rural areas. The medical community has a particular interest in the extension of satellite services operating in conjunction with broadband wired and wireless service. This interest stems from the realization that the future of cost-effective, high quality medical care – especially in rural areas - lies in using telemedicine applications to bring doctors, patients, and medical records together. Telemedicine applications have a unique need for high bandwidth because of the urgent need to transmit data intensive medical images with 100% integrity. It is for these reasons that Healthcare Anywhere is participating in this proceeding.

II. DISCUSSION

A. Issues raised by the Commission in the *FNPRM*

1. Is it appropriate to cap support at the level supported for functionally similar terrestrial services?

The Commission seeks comment on whether to cap support for satellite-based services at the same amount that would be available to support functionally-similar terrestrial-based services. As part of its inquiry, the Commission asks whether, in the context of a mobile clinic, satellite services might be the most cost-effective services available. The answer is yes. Healthcare Anywhere has experience in exploring the telecommunications options for use in mobile telemedicine. We note that the healthcare provider's decision about telecommunications services is determined not by any specific test that the FCC has outlined. In evaluating terrestrial communications versus satellite versus wireless versus microwave, the essential question for the

healthcare provider is: how can healthcare services be delivered more efficiently, effectively, and economically.[2] The telecommunications services are chosen to fulfill the healthcare delivery mission, based upon what services are available in the area, what services offer the capacity to move the amount of data necessary to deliver healthcare services, and what services are most cost effective.

In its current project, Healthcare Anywhere is working to reduce the morbidity and mortality of breast cancer by delivering real-time reports on digital mammography examinations to ensure better compliance with follow up recommendations, particularly for an underserved population of Native American women. The project will serve women in rural North and South Dakota. It will require transmission of 64 megabytes of data in five minutes. The mobile clinic will reach into the communities, where there may not be broadband telecommunications services available. The telecommunications service selected must be able to move the medical images, voice communications, and provide ancillary Internet access allowing staff on the mobile unit and patient to receive interpretive reports by e-mail.

The geographic areas to be served are key to the analysis of telecommunications service choices. If there is a wireline data circuit to share, but no voice communications available, then the voice communications need to be provided separately. In remote and rural parts of the country, there may be no choice but satellite. The functional equivalence between rural and urban healthcare facilities that is relevant to Healthcare Anywhere, and other telemedicine providers, is simply a matter of the voice/data/Internet circuits that are needed to transmit essential health information in real time from the mobile clinic to the center of excellence and receive expert consultation in return. Healthcare Anywhere urges the Commission to write its regulations in such a way that healthcare providers and telecommunications carriers focus on maximizing effective care rather than limiting the choice of service. Regulations which require geographic showings, quantifiable data throughput, and description of the healthcare delivery

[2] The rural telemedicine provider will be responsible for paying a portion of the telecommunications service cost, and because of scarce resources, there is an incentive to keep that amount as low as possible.

can establish valid requests for support, without limiting the choices of telecommunications services. The rural healthcare provider would then be able to make choices in much the same way that their urban counterparts do.

The analysis of available services is all the more complicated because most networks have been designed to allow the remote user broadband download capabilities but thin stream data uploads. In this situation, the configuration needs to be just the opposite: the medical images sent to the centers of excellence require broadband upload capabilities, but the expert interpretations and consultations can actually be conducted through e-mail and voice consultations. Some mobile telemedicine relies on videoconferencing technologies as well, and those applications require a more symmetrical telecommunications link to handle two way video.

To respond more directly to the Commission's request for comments, Healthcare Anywhere suggests that universal service support should not be capped at the amount a provider would receive if it received functionally similar terrestrial based services, presuming that there is some functionally similar service. Terrestrial based service offerings may cost more or less or not even be available. For a project such as the current mobile digital telemammography program, the terrestrial equivalent would require complex installations of voice, Internet, and T-1 connectivity at approximately forty locations across North Dakota, South Dakota and parts of Nebraska. The installation of all those circuits, which would be used for one or two weeks per year per location, would be extraordinarily inefficient. Further, while Healthcare Anywhere has not calculated the cost for the multiple terrestrial installations, the technical and administrative burdens of managing that approach would be overwhelming. Between installation costs, and connection and disconnect fees, it is likely that the terrestrial option would be far more expensive than the use of satellite connectivity. A better comparison would be assessing the effective cost of similar volumes of data throughput in urban setting versus the rural mobile telemedicine application.

Given the current costs of satellite services for this application, Healthcare Anywhere realizes that the Commission could have concerns about the long-term impact of supporting

mobile telemedicine applications. This new approach to delivery of health services is the beginning of a shift in ways to deliver high quality medical care. The telecommunications marketplace, as it has in the past, will meet this demand with innovation that helps to reduce costs and to increase service offerings. For example less than a month ago, one major telecommunications carrier announced the launch of a new satellite service that would allow for greater use of broadband satellite on a shared basis. The cost of the service for a shared T-1 connection was only $550 per month. While that service does not address the current mobile telemedicine need, it comes much closer than any other widely available solution. If the Commission's rules allow universal service support of satellite services for mobile telemedicine projects in rural and remote parts of the country, it seems clear that the service providers will find new ways to deliver more services and lower costs, bringing these satellite-based service prices closer to the price of broadband telecommunications services that are available in urban areas. Innovation, competition, and continuing advancements in healthcare should satisfy the concerns of the FCC regarding the current high cost of satellite connectivity.

Healthcare Anywhere urges the Commission to structure its regulations in a way that provides flexibility to healthcare providers in choosing the most effective services to meet the healthcare delivery needs. A cap that disallows support greater than that available for a single site functionally-equivalent terrestrial connection would provide too little support to make mobile digital telemammography possible today. And, an analysis that would require a comparison of the cost of installing forty terrestrial links, with installation, connection and disconnection fees, to the cost of satellite is burdensome, complicated, and impractical. In the alternative, the Commission could require an applicant such as Healthcare Anywhere to make a showing of the price for bandwidth equivalent services in the largest urban area in the states to be covered by the project as the basis for determining universal service support.

To illustrate the point above, in a state such as California, cities like San Francisco and Los Angeles have many service providers. In one of those cities, a mobile telemedicine provider might be able to choose to use a terrestrial T-1 and cell phones and wireless internet, if those

services met the healthcare requirements of the project. Those cities have also seen the development of broadband wireless connectivity of the sort provided by Winstar or Teligent (or the successors to those companies.) Further, the expanding use of wireless local area networks and the creation of hot spots, in conjunction with nearly ubiquitous wireless phone coverage provide more options in moving voice, video, Internet and data to and from an urban mobile telehealth clinic. A mobile health clinic in a city will choose among the several available alternatives to obtain the best connectivity for the price. The same approach should be made available to a mobile telemedicine provider in rural California, and throughout rural America, even though in rural areas the choices are fewer. It is the lack of alternatives that causes rural healthcare providers, especially mobile telemedicine providers, to consider satellite communications.

Healthcare Anywhere urges the Commission to avoid writing regulations that would compare mobile telemedicine in urban areas with mobile telemedicine in rural areas. Many urban areas do not face the same access to care challenges that are faced in rural areas. Furthermore, many urban areas do not have terrestrial wireless services that could support mobile telemedicine applications.[3] Thus, there are few, if any, mobile telemedicine project in urban areas that could provide a basis for comparison. The analysis would foreclose development of mobile telemedicine applications in rural or urban areas. A better comparison

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[3] The Commission has not clarified in its use of the term terrestrial services whether it is considering wired or fiber-based services only or whether terrestrial services include broadband wireless and microwave links. Healthcare Anywhere, and other telemedicine providers that it works with, focus more on the movement of data than the components of the network. The comparative showings noted above presume that an urban analysis would include wired and wireless choices.

In previous comments, Healthcare Anywhere and some of its participants have suggested that mobile telemedicine could drive demand for infrastructure development in rural areas. Over time, it may be that the mobile digital telemammography unit would create sufficient demand for service that a telecom provider would put a terrestrial link – wireless or wired – to the area where the mobile clinic regularly visits. Then, through wireless networking the mobile clinic might be able to make use of the terrestrial infrastructure. This would create greater connectivity for all the citizens in the community. This is one type of innovation that may come from expansion of mobile telemedicine. It is too soon to tell how quickly these various types of connectivity may become fully competitive, although innovation and competition are certain to come. In the meantime, Healthcare Anywhere has turned to satellite services to deliver healthcare.

would be to look at the telemedicine links selected by fixed urban health facilities and compare their choices and prices to the choices and prices available to a rural mobile telemedicine provider.

One note, if the telecommunications services necessary for rural telemedicine are too costly – regardless of price comparisons – these programs will not be made available, and the healthcare disparities between urban and rural areas will persist. Additionally, the benefits that telemedicine could provide – demand growth for telecom services and motivating the development of information infrastructure in rural areas – will be lost without timely support through the rural healthcare support mechanism.

2. How many locations must a mobile application serve?

The Commission requests comment on the number of locations that a mobile telemedicine clinic should serve to be eligible for support for satellite services where terrestrial service is available.[4] This question is difficult to answer. The current project Healthcare Anywhere is developing is designed to deliver women's health services at forty locations within a year. Certainly, some telemedicine projects might be in a different location each month (12 per year), while others might serve 50 per year. Still other projects might serve six locations, each location for a week at a time, yet serving each location eight times per year. Again, these choices are made based upon the healthcare delivery needs rather than the telecommunications service availability. The challenge is to evaluate the number of locations and the amount of movement.

A telemedicine project focused on sharing healthcare equipment among centralized rural

[4] Where there is no infrastructure in a remote rural area, telecommunications carriers could be paid to build out the appropriate infrastructure, but at what cost? Does that mean terrestrial service is available, or that it can be made available? If the nearest broadband connection is five or ten miles away, but those locations are not favorable for the delivery of healthcare, does the Commission anticipate that the healthcare providers will pay to build out telecommunications infrastructure to cover that distance? This approach seems inefficient. In some ways, mobile telemedicine seems to be the ideal application to urge innovation even as infrastructure is developed. Healthcare Anywhere notes that any policy argument for using established technology over new technology in remote or rural areas would have to survive the question of why the established technology is not already in place to be available for use by rural mobile telemedicine clinics.

health clinics might be able to install some form of fixed telecom facilities at those locations to which the mobile healthcare unit would connect when it visited. For a project covering two or three locations, that might be the most efficient approach. Given the remote nature of some locations in the United States, such as mountainous areas or remote deserts, the best approach might be to install a satellite connection at a fixed facility that the mobile telemedicine clinic could share over wireless LAN when it visits.

Specifying a number of locations does not seem to address the need for flexibility that would best support the development of mobile telemedicine. As noted, mobile telemedicine might provide an impetus for the development of greater telecommunications infrastructure in rural areas and might spur innovation and drive demand for more telecommunications services. Where fewer sites are served, the Commission could ask: what would the cost of terrestrial services be to achieve the healthcare delivery goals of the mobile telemedicine project, and if those costs are higher than satellite, the project would be urged to choose satellite services, but if the other costs are significantly lower, the other services would be supported. The Universal Service Administrative Corporation's application for rural healthcare support presumes that carriers will compete to provide the necessary services at the lowest prices. The application should have sufficient information that this mechanism will ensure healthcare providers can make those rational choices.

As the number of sites increases, so does the need for a wireless solution. For remote and insular areas which are sharing expensive medical equipment, they would not be precluded from using satellite connectivity if only two or three sites are using the equipment if they cannot get other services.

3. Satellite services are technologically complex, so they already pose sufficient barriers to usage without additional regulatory obstacles.

Healthcare Anywhere notes, having had experience with the transmission of medical data

over satellite links, that for now satellite-based services are unlikely to be the telecommunications service of choice, when there are other viable alternatives that meet the healthcare requirements. In the Installation and Testing Phase of its Mobile Digital Telemammography project, Healthcare Anywhere invested months of time, and thousands of dollars, to work through system integration issues and incompatibilities between imaging operating systems and the delay that is intrinsic to satellite communications. Although these technical challenges will diminish as the use of the technology becomes more familiar, the cost of the system integration required to use satellite technology is not a cost that any healthcare project would willingly incur if another acceptable telecommunications option were available. The scarcity of healthcare dollars in this country, particularly in rural America, precludes the selection of difficult and expensive telecommunications services.

4. Mobile telemedicine projects can submit maps to justify support for their programs.

Healthcare Anywhere suggests that in evaluating applications for support, the Commission ask mobile telemedicine clinic operators to submit maps of the areas where they intend to serve patients. Identification of the locations is essential to the formulation of the healthcare delivery project, so there is no additional burden placed on a mobile healthcare provider by such a requirement, and further, it allows for an evaluation by a range of potential service providers to compete to offer the needed services. It may be that mobile telemedicine providers will not have had the opportunity to identify all of the telecommunications providers who are available to offer services in a particular area. If carriers are able to review the maps, they might be able to create collaborative solutions that offer highly effective telecommunications services combining a range of technological solutions that would not be available otherwise. This approach might involve both satellite and terrestrial connectivity in different parts of the healthcare delivery area. This approach could generate greater interest in the rural healthcare support program by telecommunications carriers, foster stronger competition,

and provide more information and options to mobile telemedicine providers. The maps would also provide validation of the rurality of the mobile telemedicine project.

B. The Commission should not impose a support cap; support should be based on urban equivalent pricing

The Commission has stated that it wishes to be technologically neutral in providing support for telecommunications services supporting telemedicine. The needs of the rural health care provider may be very different from some of the needs of an urban health center, while the technologies available to address those needs are far fewer. Direct comparison to what is done in urban areas is difficult, since the lack of access to care faced by rural residents is very different than lack of access to care in urban areas. A great deal of the telemedicine activity in urban areas remains focused on connections from one fixed healthcare facility to another.

To compare pricing, Healthcare Anywhere urges the Commission to adopt a system that looks at bandwidth costs in urban areas and provides discounts to bring the rural price for bandwidth down to the lowest cost for urban bandwidth. This approach would not use a direct service-to-service comparison, and it would not compare mobile telemedicine care to mobile telemedicine care, yet as we noted above, there is not sufficient mobile telemedicine to make such a comparison useful. This approach would provide the best incentives for adoption of telemedicine in rural areas, helping the government achieve its objectives of increasing access to care, improving the quality of care, and assisting in the adoption of health information technology in rural areas, all of which are goals of the Department of Health and Human Services. Furthermore, the goal of the rural healthcare support mechanism is to foster the development of telecommunications technologies to support healthcare in rural areas. A comparison of costs used by urban telemedicine applications might finally provide enough support to make it economical to bring high quality healthcare to rural America.

An urban telemedicine center would select the lowest cost provider of bandwidth, as long as the service quality was sufficient to meet the telemedicine needs. Healthcare Anywhere

suggests that this proceeding is an opportunity to urge mobile telemedicine providers to bridge gaps in access to healthcare by providing support for the telecommunications links that make rural telemedicine viable. Since Medicare, Medicaid and third party insurers do not distinguish between rural and urban residents/patients in making reimbursements for care provided, there is no way for a rural telemedicine provider to cover significantly higher telecom costs than those faced by their urban counterparts.[5] Thus, the rural healthcare support mechanism needs to be sufficiently robust to help generate the types of rural telemedicine projects that will deliver high quality healthcare to underserved rural America, at a cost that is in keeping with similar health services delivered elsewhere. What makes this approach work is that the more projects put into place, the more infrastructure will be developed, and the incremental costs will decline. This will lead to a healthier America.

C. Mobile Telemedicine May Assist Homeland Security and Emergency Response

Despite the relative complexity of using satellite telecommunications, once the infrastructure is put into a mobile telemedicine clinic, it becomes far easier to adapt that clinic to other uses in the event of an emergency. Computer equipment will already be integrated into the mobile medical facility. Further, with satellite equipment already configured, the van would be usable in any part of the US. In a time of emergency, these units (about the size of an RV) could be flown quickly to the scene of a crisis. This is one reason to encourage the use of satellite technology in some mobile telemedicine clinics. Further, the more clinics that are built, the lower the cost for the satellite services and technology.

Healthcare Anywhere hopes that the US will never face additional terrorist attacks. In

[5] In the recently passed *Medicare Prescription Drug, Improvement, and Modernization Act of 2003*, P.L. 108-173, signed into law on Dec. 8, 2003, Congress has attempted to correct an inequity that paid urban physicians a greater amount in reimbursement than their rural colleagues. The reimbursement was based on the location of the physician rather than the patient, so that rural patients seen through telemedicine generated no more revenue for the urban doctors than urban patients, and rural doctors received less reimbursement for seeing rural or urban patients, with no Medicare provision for the cost of rural telecommunications links to support either the rural health provider or the urban colleague who would use telemedicine to deliver care. Even after the adjustments in the recent legislation, there is not enough reimbursement to cover the differential in telecom costs. Only the rural healthcare support mechanism can help to correct that inequity.

the event that terrorists choose to use chemical, radiological, or biological weapons, it seems wise to be prepared to move the health care workers to the site of attack, isolating those who could be contagious, contaminated, or worse. Actions by the Commission which permit the effective development of mobile telemedicine clinics will help to create mobile health vans that are prepared to be used in an emergency. Mobile telemedicine and other telemedicine applications are vital to ensuring that people in rural America have access to the same quality of care that is available in urban areas, and the investment in technology to be used in rural areas may help urban residents in crisis.

D. The Commission should create incentives for sharing services, when possible.

Healthcare Anywhere has learned that the creation of one mobile telemedicine clinic will likely lead to the creation of more such clinics.[6] One potential consequence is that a consortium of such mobile clinics could share burstable satellite telecommunications bandwidth. The Commission might be able to preserve resources and encourage innovation in rural telemedicine by creating incentives for sharing of space segments among mobile telemedicine providers. The telemedicine clinics might purchase more bandwidth, but by sharing the bandwidth, they could purchase more at a lower price than each could purchase separately. The measures of what services are needed relate directly to the amount of data to be moved, the rural areas in which services are provided, and other measurable aspects of telemedicine projects. The Commission's rules regarding support should similarly consider these factors.

III. CONCLUSION

Healthcare Anywhere urges the FCC to modify its rules to allow for uncapped support for the use of satellite services for mobile rural telemedicine applications. Further, Healthcare

[6] This is the result of other healthcare providers expanding on the efforts of the pioneers. Also, rural communities that benefit from mobile telemedicine tell others about the benefits, and other communities follow the leaders.

Anywhere urges the FCC to evaluate support based upon rates paid by urban healthcare providers for the same bandwidth to move similar types of data, regardless of the type of service used. The Commission could request maps and detailed explanations of healthcare projects to establish a need for the type of bandwidth and connectivity which will be supported, and the information should be tied to the specifics of a project in ways that are clear and measurable. Accordingly, Healthcare Anywhere respectfully requests that the Commission adopt the proposals set forth herein.

Respectfully submitted,

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